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Research Article

Enhanced Path Routing with Buffer Allocation Method Using Coupling Node Selection Algorithm in MANET

Rajendra Kumar Bharti,[1] **Soundarajan S**,[2] **Sushma V. Sumant**,[3] **C. Anand Deva Durai**,[4] **Relangi Anil Kumar**,[5] **Kamlesh Singh**,[6] **Hemant Palivela**,[7] **B. Rajesh Kumar**,[8] **and Baru Debtera**[9]

[1]*Department of CSE, B. T. Kumaon Institute of Technology, Dwarahat, Almora, Uttarakhand, India*
[2]*Department of Computer Science and Engineering, Velammal Institute of Technology, Chennai, Tamil Nadu, India*
[3]*NCRD's Sterling Institute of Management Studies, Nerul, Navi Mumbai, Maharashtra, India*
[4]*College of Computer Science, King Khalid University, Saudi Arabia*
[5]*Department of Electronics and Communication Engineering, Aditya College of Engineering and Technology, Surampalem, Andhra Pradesh, India*
[6]*Department of Mechanical and Mechatronics Engineering, Quantum University, Roorkee, Uttarakhand, India*
[7]*ATCI, Accenture Solutions, Mumbai, India*
[8]*Department of CSE, Dhanalakshmi Srinivasan College of Engineering, Coimbatore, Tamil Nadu, India*
[9]*Department of Chemical Engineering, College of Biological and Chemical Engineering, Addis Ababa Science and Technology University, Ethiopia*

Correspondence should be addressed to Rajendra Kumar Bharti; rajendramail1980@gmail.com and Baru Debtera; baru.debtera@aastu.edu.et

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In a mobile network, nodes are placed in infrequent manner, which are moved along network in abruptly. Communication flaw between sender node and accepting node in path, the node having restricted energy and restricted transmission rate. It does not provide perfect route for communication among mobile nodes. It increases the packet drop rate and minimizes the lifetime of network. This work has proposed enhanced path routing with buffer allocation (IPBA) scheme which is implemented to obtain better communication; it protects the node from packet loss, and the buffer is used to maintain the temporary details of nodes and data packets that are ready to broadcast and receive. The coupling node selection algorithm is constructed to offer the path which frequently communicates data packets in normal case; the two efficient nodes are coupled with each other, and this type of nodes is selected to perform communication. It reduces the packet loss rate and increases network lifetime. End-to-end delay, communication overhead, throughput, network lifetime, packet loss, and energy consumption are the parameters considered for performance evaluations.

1. Introduction

The mobile architectural and techniques construct morality for the routing networks. A network can be observe as a collection of highly detached network areas, where the packet sharing network structure should be far from perfect with maximum error rates, maximum packet latency, and sporadic link connection with the general environment. Individual techniques are used to broadcast data packets among these disconnected network areas is by using mobile data packets convey, packers are forwarded in available paths among the network areas. To minimize the packet end-to-end delay, multiple data packet can be included in the similar path, to dissimilar nodes in the similar network area [1].

All data packet has a set and then data storage buffer that are burdened unburden at local relay nodes, when the data packets discontinue transmission for a quantity of time instance. Though the characteristics of data packets are worst, therefore, the disconnected network areas do not sequence regarding the data packets' plan and capability, since the traffic demand pattern is dynamic and irregular [2].

The major aim of technique, consequently, is used to increase the routing network characteristics through the condition of suitable detail to the disjointed network areas. For this method, consider that there are huge amount of data packets sharing on stable paths [3]. The data packets are challenging for proceeds so individual method to actively objectivity the network area in the buffer storage according to the packet jamming demand pattern for every area on the data packet's transmitting route [4]. There are different resource allotment methods for increasing the quality of service in mobile networks, except this method is varied in which contain a node of permanent network areas and permanent data packet transmission paths. Local relay nodes are available at each network area which maintain the data packets from the nodes in the appearance of a priority queue with data packet precedence [5]. In cooperative, the incompatible network latency through the network areas, presenting end-to-end packet transfers, uses accumulate and forward techniques at relaying nodes.

Though data packet transfer obtains the maximum reliability, it does not calculate to satisfy the quality of service needs that are routing cost and time usages [6]. It operates to increase the characteristics of routing networks from two features. To allow the data packets notify the local relay nodes, broadcast the routing details about its programme and buffer allotment for the subsequently a small number of routines [7]. Next, present scheme to allow relay nodes to be a valid customized minimum distance routing path discovery methods which is applied to the accept forward data packets to estimate the route with the minimum distance path from sender node to destination node that satisfy many quality of service needs of the data transmission with its time instance. Thus, the relay nodes create logical result after knowledge regarding the different paths from source node to destination node [8].

Every relay node makes a decision regarding that data packet to broadcast its data packets depends on the routing cost and the time constraints for the data packets, which depend on various variables like message size, data packet wait time at each region, and data transfer cost per kilobyte for the data's priority [9]. Data packet moving latency between source node and destination node, data packets wait time for subsequently data packet transmission. Both of these variables indicate a measurement in the Euclidean distance among the sender node and the target node, and it should be normalize depending to the predisposition of the network area with choosing minimum cost path for routing [10].

The rest of the paper is constructed as follows. Section 2 provides the related works. Section 3 presents the information of the proposed enhanced path routing with buffer allocation (IPBA) scheme which is used to achieve better communication; the buffer is used to maintain the routing information. The coupling node selection algorithm is designed to provide the sequence of packet transmission path, using the coupled nodes. Section 4 provides simulated performance result analysis obtained under various metrics. At last, Section 5 concludes the paper with future work.

2. Related Works

Abuthawabeh et al. [11] proposed encoding multiple kinds of node coupling in the network; it assures to expand the performance analyzation. Various methods are previously survive for visually discriminating those kinds in node connection. To analyze the two of these methods such as a node connectivity and a matrix method in a sensible conditions where the programme and boundary of a system network structure are linked by more various types of node coupling, the explorative node observes that conducted with interactive description of the two visualizations focuses on reaching a data packet to destination node.

According to Ullah et al. [12], the problem of noncooperative behavior by incorporating the idea of fuzzy logic intimately joined with the idea of confidence. Fuzzy-based analyzer is used to differentiate among the noncooperative characteristic nodes and reliable nodes in network. A fuzzy-based scheme to identify and separate noncooperative nodes, every node in the network continually observes its single-hop intermediate nodes for its process. Every node evaluates the security of the monitored neighbor nodes. These trust values are approved on to a fuzzy purpose that is plan into various programme. The resultant module indicates the security ranges of the monitored nodes. The fuzzy-based scheme is strongly sufficient for identification of packet loss intrusion in the network environment.

Yoon et al. [13] present FBR (friendship-based routing) which is a communication technique for a network; it uses the intercontact time of every node to discover a high-quality intermediate node. Sometimes, this technique endures from boundaries, like an unreflecting steadiness and inefficient qualified parameters. The eFBR-improved friendship-based routing method resolves the issues of the FBR method. A node does not only make use of intercontact instance but also regard as a contact duration of nodes to choose an intermediate node to shine steadiness extra-accurately. It makes simpler the equation to acquire not direct connection of nodes that increases routing cost whereas it must not minimize the routine. Subsequently, the present communication method attains lesser delay and routing cost compared with existing method.

According to Chen et al. [14], specifically, the present route aware routing scheme employs the path average nonfading time as a communication parameter to choose steady connections for path finding and relate a preventative handoff method to keep dependable links by exploit path state details. By means of the similar details, routes can be reused while they turn into process, rather than individual leftover. New theoretical outputs for the network lifespan are improved of a live-die-live multiple path network, as well as comprehensive theoretical expressions for frequent network presentation process, and provided that helpful nearby into the dissimilarity in characteristics among previous techniques.

Basu et al. [15] proposed a distributed clustering scheme, depends on the utilize of this speed parameter for choosing of target node and show with the aim of process guide to additional steady group is efficient than the low energy target node is altered, the version of the efficient grouping scheme. It indicates the avoidance of maximum energy usage node for cluster head alters owing to the employ of the present method. Mobile network which uses efficient depending process, network characteristics of parameters are transmission rate, and packet latency is strongly joined with the occurrence of group restructuring.

Rathore and Khan [16] proposed the ant-based multipath jamming managing method with altering the queue considering to traffic in energetic network. This balances the traffic by offering different routes except not capable at all situation. This offers the many route for packet transmission. This part depends on the pheromone rate which does not on the source of minimum distance path, and the potential backlog difference is switch the data, which exceeds the determined storage restriction. The line is improved, and the store and transmitting ability of nodes is improved. The load balancing technique resourcefully managed the traffic on the network environment. Whether the node individual apart of communication node travels out of coverage range then the AOMDV is minimized the transparency restoration of among the source and target node, the present method enhances the communication by pheromone-based path chosen.

Terdal et al. [17] present a recent technique which differentiate the overload by allowing for various metrics that are path traffic, path access disagreement, and residual energy at a node into communication process. Calculating the path situation should successfully decide traffic. An additional factor which give to efficient presentation as steadiness, it is completed by formative the energy range connected with a routing node. Many route versions of on-demand communication schemes are constructed for reducing traffic, and packet latency, except incorporate traffic alertness, can additionally develop its characteristics.

Hu et al. [18] present an intermediate encryption method that depends on threshold covert sharing scheme, to improve the data privacy, trustworthiness, and integrality in mobile network. The essential design is used to hand out the entire encryption process to every nodes along the path; all nodes complete the part of the encryption process instead of the solitary sender node encrypting the entire data packet. It separates the entire data packet into many split for threshold covert sharing scheme. On the communication route, all nodes select various unencrypted distribute and encrypt them independently.

Persis and Robert [19] present scheme needs for the routing resources to decide paths enduring connectivity which provided the continuous packet sharing without cooperation superiority of service and traffic controlling. The ad hoc on-demand distance vector communication technique is mainly used in mobile network for creation of communication result since its presentation in parameters is latency, transmission rate, packet success rate, and quantity of nodes that should distinguish with the previous techniques.

Geetha and Sareeka [20] present dispersed traffic controlling group-based technique reconfiguration scheme which offers maximum packet success rate and link. To evaluate the malfunction of the nodes and connectivity and reconfigure the techniques by choosing optimal communication energy to keep away from separation, these alterations are completed only at flaw situation. Experimental output indicates that the present scheme improves the node lifespan and minimizes the energy usage.

3. Overview of Proposed Scheme

Mobile nodes are placed in uncommon manner in network that are placed beside network unexpectedly. Packet transmission error occurred among the sender node and receiver node in communication route; every node has limited energy level and limited transmission rate. In general, mobile network does not have storage buffer for every node and initiate its packet transmission. It must not offer better route for packet transmission through the mobile nodes. It maximizes the packet drop rate and reduces the network lifetime.

In the proposed enhanced path routing with buffer allocation (IPBA) technique is applied to offer the better communication; it secures the node from drop of data packet; during communication period, the storage buffer is used to keep the temporary information of mobile nodes, and nodes are equipped to transmit and receive data packets in the routing path. The coupling node selection scheme is implemented to perform transmission of the data packets in a standard case; the two efficient nodes are combined with each other, and this type of node is chosen to execute packet transmission. It minimizes the packet drop rate and improves the lifetime of network.

Figure 1 shows the proposed enhanced path routing with buffer allocation technique. The mobile nodes are deployed unevenly, and it contains the restricted energy level. Enhanced path routing with buffer allocation (IPBA) technique is used to detect the flaw in communication. Storage buffer is used to keep the data packet details; buffer is used for every routing. Coupling node selection algorithm is used to select the best coupled node for routing. This technique increases the lifetime of network and reduces packet loss rate.

3.1. Restricted Energy for Uneven Deployment of Nodes. The mobile nodes have a restricted energy level, the quantity of packet accepted, and the forwarded collision for energy usage considering to the method alteration; the radio fragment can be executed. Transmit and manage the data packets equally authority this energy usage. Though, the network diffusion in nodes vicinities influences energy usage consider to the method of the MAC layer operates. Network nodes maintain transmitting data packets awaiting accepter response packet. This method should improve the network trustworthiness except also energy usage. The energy usage in stable and unstable situation using violin plots to there whole data packet sharing. These density with a important alter in energy usage. To monitor that packet drop uses the

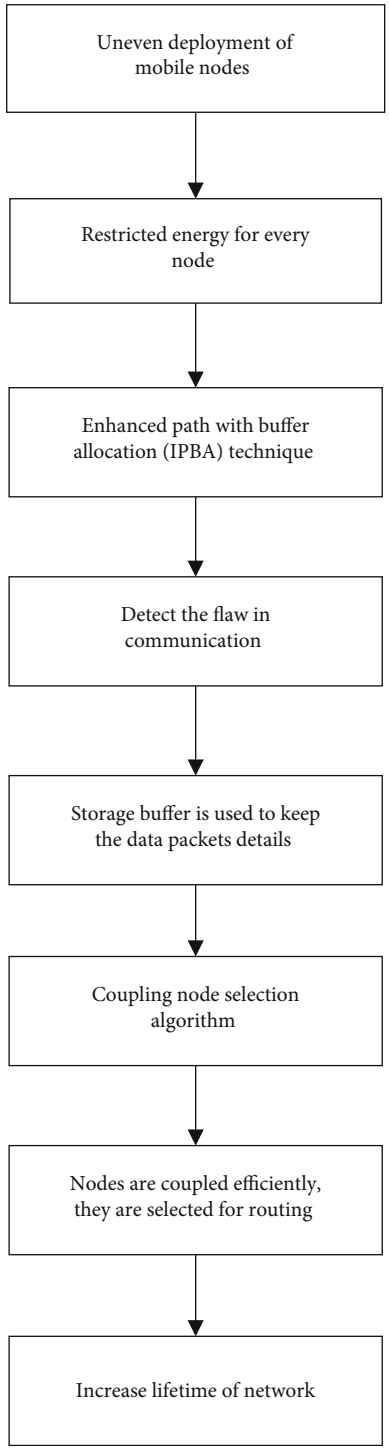

Figure 1: Block diagram of enhanced path routing with buffer allocation technique.

maximum energy for all conditions, mobile nodes are always process with the remaining methods when there is lesser velocity. It is reliable with the output generated by nodes transmit or accept minimum amount of data packets.

The possibility of packet drop does not indicate a solitary rate of density where these schemes perform efficient communication. It denotes that the rate of the packet manages is worth in condition of energy usage, while there is no velocity for mobile nodes. Remaining sector, while the nodes travelling time indicates a various characteristics. The uneven deployment of nodes performs communication with lesser density. This should focus only for the density of node which is greater than group nodes develop into reasonable another time. In association, observe that mobile nodes forward minimum amount of data packets with minimum distance path. Also, it does not keep a totally up-to-date node movement; it appears to not succeed in minimizing the quantity of intermediate nodes. UNNis the uneven nodes,LEremoves the limited energy, andLTremoves the limited transmission rate.

$$\mathrm{UNN} = R(\mathrm{LE} * \mathrm{LT}). \tag{1}$$

The coverage range for the investigated algorithms in equally stable and unstable conditions. Some approach be unsuccessful to transmit data packet in configurations with less quantity, since the network is linked by an individual node in some divisions. Specifically, efficient path routing main motive to reduce packet drop, it disposed to damage with various values of quantity, although far minimum than topology depending techniques. Because the position of each mobile node alters constantly, this scheme infrequently damages in computing the covered area; as a result, some packets do not accept. t is the time usage.

$$\mathrm{LE} = \mathrm{Flaw}(\mathrm{Path}) * t. \tag{2}$$

The duplicate messages decide to extent the packet transmission standard is flooded. Stable conditions, where MPR performs all remaining techniques. Therefore, the variation among multipath routing techniques and various techniques, it minimizes the routing quantity improvement. This efficient path allocation technique rejects the rebroadcasting of data packet for more efficiently compared with normal techniques. This outline was normal in maximum compactness since efficient path allocation avoids the retransmission of data packets. Proposed dynamic conditions, where it monitors that velocity affects the characteristics of topology-based scheme. Certainly, the essential topologies rapidly turn into out of coverage consider to the steady alteration in nodes for neighbor list. This keeps its strength in these energetic situations except the energy and transmission rate of achieving the data organization does not measure. PL is the packet loss, and PS is the packet success path.

$$\mathrm{Flaw}(\mathrm{Path}) = \mathrm{PL}, \tag{3}$$

$$\mathrm{HE} = \mathrm{unFlaw}(\mathrm{Path}) * t, \tag{4}$$

$$\mathrm{unflaw}(\mathrm{path}) = \mathrm{PS}. \tag{5}$$

The quantity of fake packet transmitted by using this uneven deployment of nodes in network decreases the use of energy for packet transmission node, while PDM is distinguished over the presence of intrusion which also damages the data packet acceptance. For specific time period, using general packet dropping with a more quantity of nodes accepts

fake packet for communication. This scheme requires to reduce the traffic for packet transmission in waiting time of packets.

3.2. Enhanced Path Routing with Buffer Allocation (IPBA) Technique. Intrusion issue is more difficult in mobile network. Intrusion happens when any network link does not manage the data traffic in suitable mode or many nodes are concurrently require the path out of coverage ranges. In investigating the amount of previous scheme in the field of traffic managing with various method, individuals process to support and offer the way near to balance the traffic with the support of routing path alteration, with ant optimization. The on-demand multipath distance vector routing is helpful for traffic controlling using three efficient minimum distance routes that depend on communication. Except under the velocity for network environment, AOMDV provides more traffic. Consequently, present the improved AOMDV communication and explore the efficient routing path from source to destination node, depends on velocity, and packet latency, when any sender starts the communication explore data packet and forward. Therefore, to choose the relay link node depends on the difference of its velocity and packet latency with other gateway node in network. When the relay node velocity is less and packet latency through two nodes is minimum than to choose the minimum velocity, and placed nodes as gateway node and form the connection. With the purpose of recursively link to destination still reaches it. Subsequent to the process of altered AOMDV to choose efficient paths.$R(\text{Flaw})$remove flaw path.

$$\mathrm{R(Flaw)} = (\mathrm{PS} - \mathrm{PL}) * t, \tag{6}$$

$$S(\text{unflaw}) = \max\,(PS) * t. \tag{7}$$

Path optimization is applied for trustworthiness which depends on pheromone values. Optimization technique is helpful for efficient packet transmission; it is also aware about connection capacity as well as node capacity using amount of ant which travels among the specific route and get pheromone value; those values are helpful for discovering updatable route trustworthiness, and it improves the network characteristics in terms of transmission rate and reduces the intrusion. The informal report of this scheme, this part, illustrates the present technique and describes the network metrics; those are lesser required and forward investigate the sharing data packets and obtain the three efficient routes which depends on minimum velocity and packet latency.

When the path is recognized than apply algorithm for path optimization the communication. That optimization operates among the testing data forwards from source to destination node by using efficient path chosen by ad hoc routing and obtain the packet success rate of each routes. The packet success rate is helpful for trustworthiness discover of any route. Another rate is pheromone values of every connection that estimates among the amount of packet transmission success by connection out of whole amount of routing packets extend against the network environment. Subsequent to recovery of pheromone standards its applies for the evaluation of trust worthiness of nodes and depends on that to forward data packet from every chosen connection, so in future jamming are does not happen in the network structure. The buffer is used to store and maintain the routing information of specific path.

$$\mathrm{HE} = \max\,(\mathrm{PS}) * t, \tag{8}$$

$$\mathrm{LE} = (\mathrm{PS} - \mathrm{PL}) * t. \tag{9}$$

An additional way for the communication method to identify connection failure is to disappear it up to a mechanism execute at the fundamental link layer. The communication technique must then be notify clearly concerning a connection damage by the connection layer. The demerits of this link layer notification method should be the rate of additional performance difficulty, though the merit is that the connection layer is usually capable to identify the connection damages earlier. Packet sharing with buffer sector scheme to damage identification among the packet drop. It is vital for the entire characteristics to identify the connection failure in a timely mode, because two negative effects occur in the time instance among the physical connection failure and the identification by the communication technique. Initially, the packet lines in the interface line are noticeable with an inaccessible next hop node id. It denotes that data packets does not arrive at its target node.

3.3. Coupling Node Selection Algorithm. Every node needs to transmit and accept data packets to/from its intermediate nodes. All nodes process the packet accepting energy range of two succeeding packet sharing from every relay nodes and then estimate the couple wise node qualified speed metrics. A node estimates the collective relative speed parameter. Each and every node initiates to couple with neighbor node for communication. All nodes transmit data packets its individual speed parameters; the alert packet forwarded to its single hop neighbor nodes, once in every transmission time gap. This is maintained in the neighbor table of every intermediate node along with a time slot end. This algorithm is designed in a dispersed manner. A node accepts the packets from its relay nodes and then distinguishes them with its individual. HT-LT higher transmission rate is selected.

$$R(\mathrm{LT}) = \mathrm{HT} - \mathrm{LT}, \tag{10}$$

$$\mathrm{UNN} = R((\mathrm{PS} - \mathrm{PL})t * (\mathrm{HT} - \mathrm{LT})t). \tag{11}$$

Whether a node has the minimum rate for packet aggregation with lesser velocity surrounded by every intermediate node, it considers the status of a coupling node; else, it processes itself to be relay node. This algorithm guides to the creation of coupling node that is at most two relay nodes within distance. Whether a node is an intermediate of two relay nodes, then it called as a coupling node. Whether two intermediate nodes in a coupling condition contain the similar rate of routing, in a mobile network, if two relay nodes

Step 1. Deploy node with various energy level.
Step 2. For each node, search intermediate node.
Step 3. Source node discover path by using buffer allocation.
Step 4. if{Path == success}.
Step 5. Nodes have more energy.
Step 6. Sequence of packet transmission is performed.
Step 7. Better path is chosen.
Step 8. elseif{Path == failure}.
Step 9. Nodes have restricted energy.
Step 10. It does not perform sequence of packet transmission.
Step 11. End if.

Algorithm 1: Algorithm for enhanced path routing with buffer allocation technique.

Step 1. Compute intermediate node capacity.
Step 2. For each node, try to couple with neighbor node.
Step 3. if {route! = Flaw}.
Step 4. The best coupled nodes are selected to perform communication process.
Step 5. elseif {route == Flaw}.
Step 6. That nodes are not chosen for coupling.
Step 7. End if.
Step 8. Improve network lifetime.
Step 9. End for.

Algorithm 2: Coupling node selection algorithm.

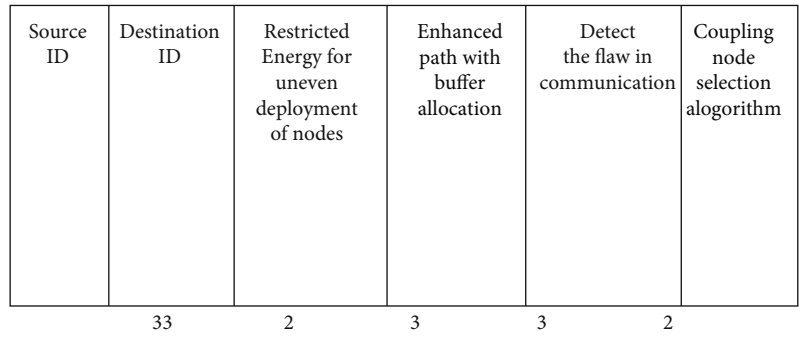

Figure 2: Proposed IPBA packet format.

with position of coupling node shift into another coverage range, recoupling process is performed to permit for supplementary information among the transmission nodes. Whether the nodes are in coverage limit of each other process after the time ends, recoupling is performed, and the node with the minimum velocity parameter considers the grade of coupling node.

This algorithm is easy to select the coupling node for communication and provide efficient route. It improves the network lifetime and minimizes the packet loss for every routing process.

Packet ID contains each and every mobile node information. It also has the location of intermediate nodes.

In Figure 2, the proposed enhanced path routing with buffer allocation (IPBA) packet format is shown. Here, the source and destination node ID field occupy 3 bytes. The third one is restricted energy for uneven deployment of nodes; these nodes have limited energy level for routing, which occupies 2 bytes. The fourth field occupies 3 bytes. Enhanced path routing with buffer allocation scheme is used to allocate the routing path based on storage buffer; it stores

Table 1: Simulation setup.

No. of nodes	100
Area size	860 × 640
Mac	802.11 g
Radio range	250 m
Simulation time	32 ms
Traffic source	CBR
Packet size	512 bytes
Mobility model	Random waypoint
Protocol	AODV

Figure 3: Proposed IPBA result.

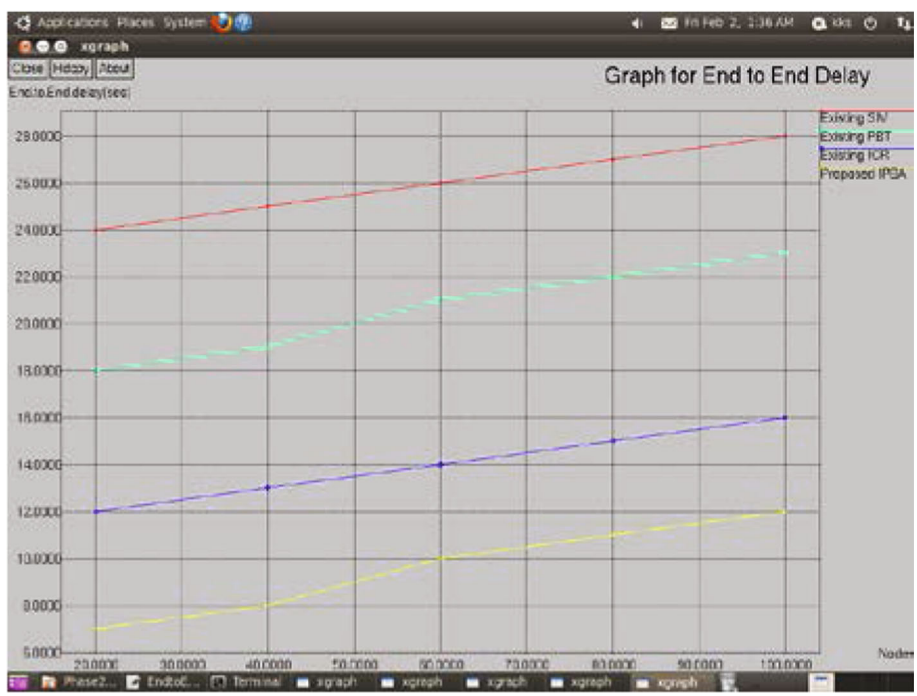

Figure 4: Graph for nodes vs. end-to-end delay.

the details of routing nodes. The fifth occupies 3 bytes. Detect the flaw in communication path, the nodes have limited energy; it causes the packet blockage; it is called as flaw in communication. The last field is coupling node selection algorithm; it chooses the coupled node to reduce packet loss, and it occupies 2 bytes.

4. Performance Evaluation

4.1. Simulation Model and Parameters. The proposed IPBA is simulated with network simulator tool (NS 2.34). In our simulation, 100 mobile nodes move in an 860-meter × 640-meter square region for 32 milliseconds simulation time.

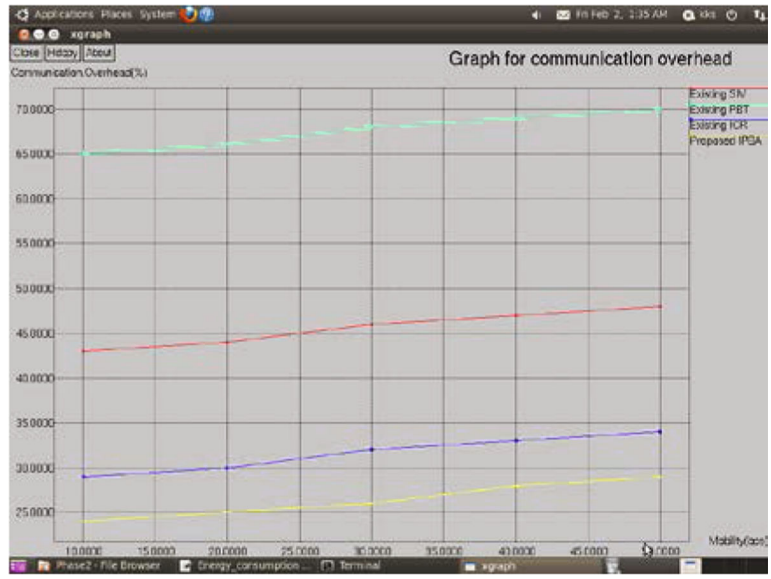

Figure 5: Graph for mobility vs. communication overhead.

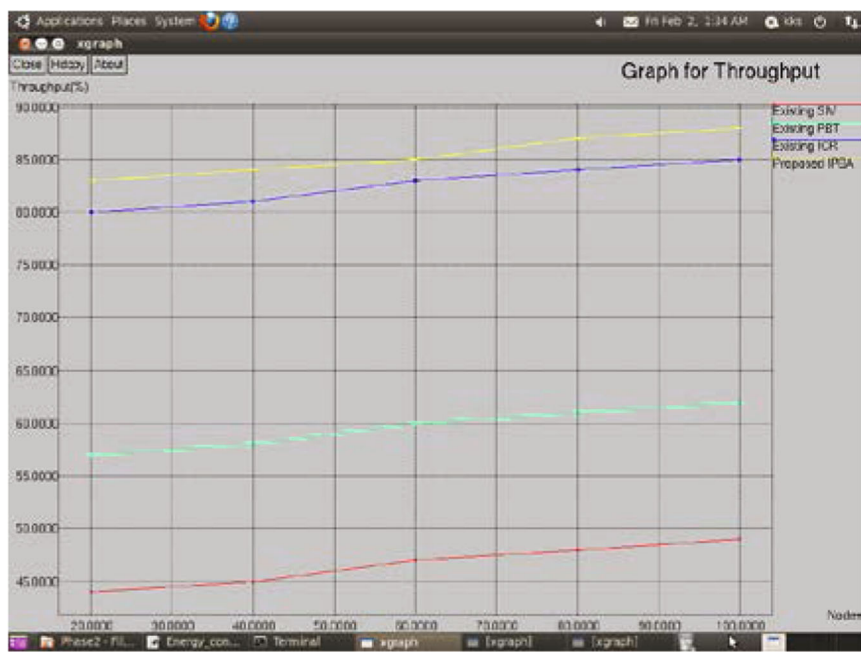

Figure 6: Graph for nodes vs. throughput.

Each mobile node goes random manner among the network in different speed. All nodes have the same transmission range of 250 meters. CBR (constant bit rate) provides a constant speed of packet transmission in the network to limit the traffic rate. AODV (ad hoc on-demand distance vector) routing protocol is used to provide maximum network lifetime in mobile network use coupling node selection algorithm to choose couple of nodes for communication. Table 1 shows the estimation of simulation setup.

4.1.1. Simulation Result. Figure 3 shows that the proposed enhanced path with buffer allocation (IPBA) method is used to offer flaw free routing between sender and target node which is compared with existing SIV [19] and PBT [20]. IPBA method monitors that the every node status is used to measure node energy level, which is limited or high, and then allocate path for routing. Coupling node selection algorithm is designed to select couple of nodes. It reduces packet loss rate and increases network lifetime.

4.1.2. Performance Analysis. The simulation to analyzing the following performance metrics using X graph in ns2.34.

(1) End-to-End Delay. Figure 4 shows that end-to-end delay is estimated by the amount of time used for packet transmission from the source node to destination node; each node

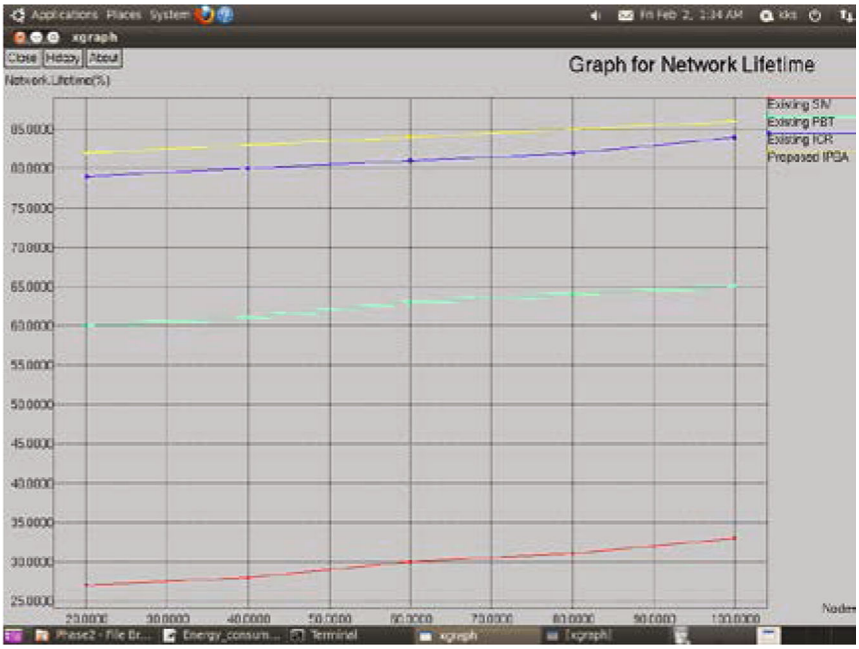

Figure 7: Graph for nodes vs. network lifetime.

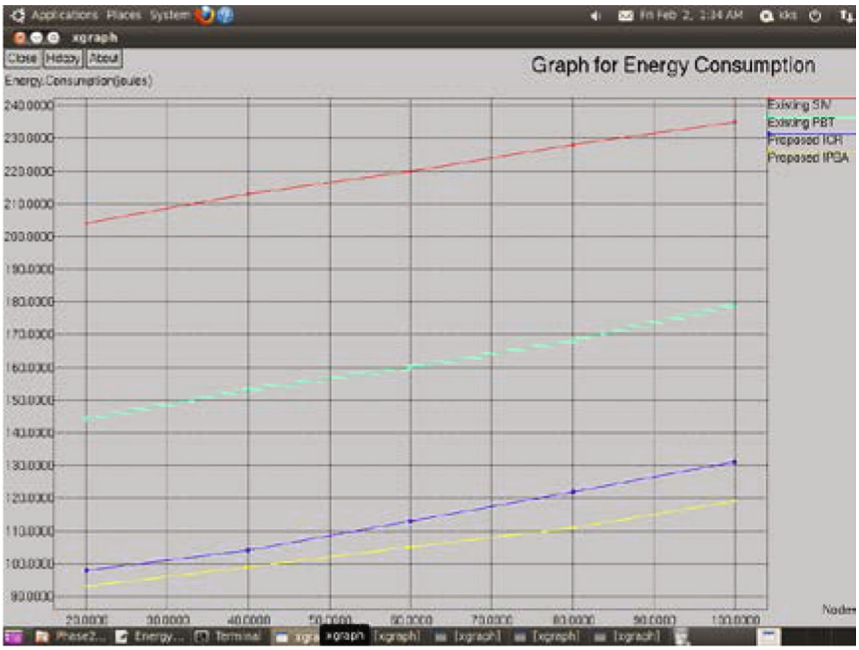

Figure 8: Graph for nodes vs. energy consumption.

detail is maintained in the routing table. In the proposed IPBA method end to end, the delay is reduced compared to existing method SIV, ICR, and PBT.

$$\text{EndtoEndDelay} = \text{EndTime} - \text{StartTime}. \quad (12)$$

(2) Communication Overhead. Figure 5 shows that communication overhead is minimized in which sender transmits the packet to the receiver node. The enhanced path with buffer allocation (IPBA) method is used to offer flaw free communication path among sender to receiver node. In the proposed IPBA method, communication overhead is decreased compared to existing method SIV, ICR, and PBT.

$$\text{Communicationoverhead} = \frac{\text{NumberofPacketLosses}}{\text{Received}} * 100. \quad (13)$$

(3) Throughput. Figure 6 shows that throughput is measured by no.of. received packet sent in particular area . Node velocity is not a constant; simulation mobility is fixed at 100 (bps). The

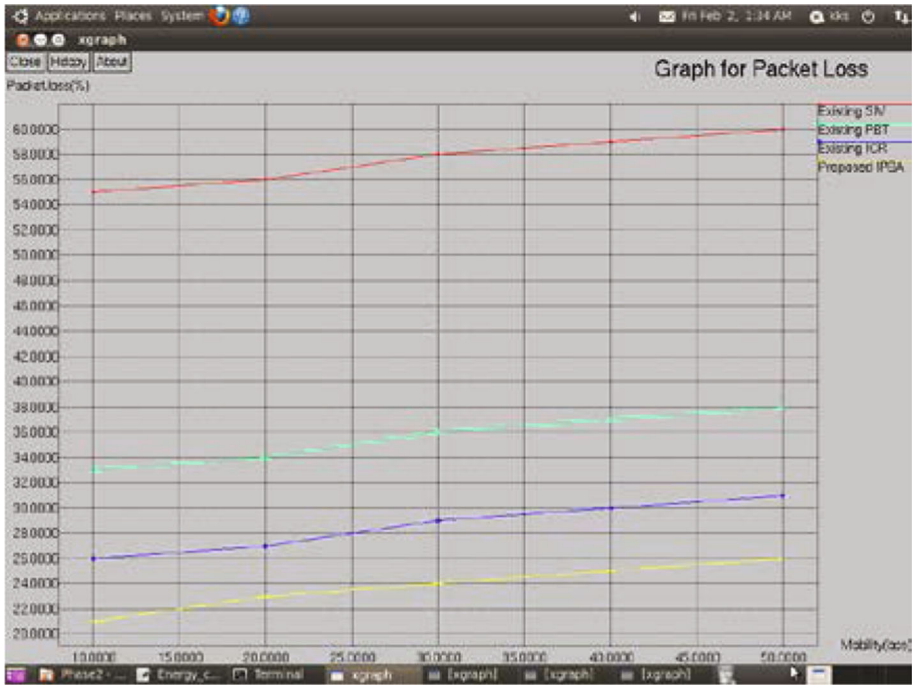

Figure 9: Graph for mobility vs. packet loss.

enhanced path with buffer allocation (IPBA) method is used to choose the efficient routing path. In the proposed IPBA method, throughput rate is increased compared to existing method SIV, ICR, and PBT.

$$\text{Throughput} = \frac{\text{Numberofpacketreceived}}{\text{Sent}} * \text{speed}. \quad (14)$$

(4) Network Lifetime. Figure 7 shows that lifetime of the network is measured by node process time taken to utilize network from overall network ability. In the proposed IPBA method, link connectivity is established, so network lifetime is improved compared to existing method SIV, ICR, and PBT.

$$\text{NetworkLifetime} = \frac{\text{timetakentoutilize network}}{\text{overallability}}. \quad (15)$$

(5) Energy Consumption. Figure 8 shows energy consumption-how extended energy spends for communication, that means estimate energy consumption the energy level to ending energy level. In proposed IPBA method efficient routing in an autonomous mobile network environment energy consumption is minimized compared to existing method SIV, ICR, and PBT.

$$\text{EnergyConsumption} = \text{InitialEnergy} - \text{FinalEnergy}. \quad (16)$$

(6) Packet Loss. Figure 9 shows that packet loss of particular communication in the network is calculated by node loss packet with weak connectivity to obtain traffic free communication; the coupling node selection algorithm is designed to select the coupled similar energy node for communication. In the proposed IPBA method, packet loss is minimized compared to existing method SIV, ICR, and PBT.

$$\text{Packetloss} = \left(\text{Numberofpacket}\frac{\text{dropped}}{\text{Sent}}\right) * 100. \quad (17)$$

5. Conclusion

In mobile network, nodes are deployed in uneven manner; its capacity allocation is also uneven for routing. This creates some drawbacks for communication between mobile nodes. The nodes should estimate its performance which makes the packet loss. The limited battery of mobile node only transmits limited data packet to target node. So, the proposed enhanced path with buffer allocation (IPBA) technique is assigned to provide flaw free communication. The buffer storage part is used to maintain the routing information of nodes in specific route. The coupling node selection algorithm is constructed to get better coupled node for routing from source node to destination node. This minimizes packet loss and improves network lifetime. Future enhancement of the work is improved with unpredictable flaw detection method to identify the attacks found while communicating.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

There is no conflict of interest.

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